ESTIMATES OF NONCONSUMPTIVE WILDLIFE USE ON FOREST SERVICE AND BLM LANDS

by

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April 1988

Series No. 88-2

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Section I TRIP INFORMATION — Continued

Part B — ECONOMIC EVALUATION

INTERVIEWER: Refer to item 4a on page 4 and item 2d on page 3, sum the number of trips taken in 1985, and enter the total. → 237 _____ Trips

12a. **In total, you took** *(Number of trips taken)* **trips in the U.S. in 1985 for the PRIMARY PURPOSE of observing, photographing, or feeding wildlife. Think about what it cost you for a *typical or representative* trip. Include your expenses for such things as gasoline and other transportation costs, food, lodging, equipment rentals, and film and developing if you typically photographed wildlife on such trips. If you went with family or friends, include ONLY YOUR SHARE of the costs.**

Keeping all those expenses in mind, how much did a typical one of those trips cost you, on average, in 1985?

238 $ _____ .00 per trip

0 ☐ Nothing — *Skip to 12h*

b. **Now suppose the cost of those trips last year had been significantly higher, but the cost per trip for other kinds of recreational activities had not changed.**

If your costs had been $ *(3x the amount in a)* **per trip, would you still have taken trips for the primary purpose of observing, photographing, or feeding wildlife in 1985?**

239

1 ☐ Yes
2 ☐ No — *Skip to 12f*

c. **At $** *(3x the amount in a)* **per trip, how many trips would you have taken in 1985?**

240 _____ Trips

d. **If your trips had cost you an average of $** *(4x the amount in a)* **per trip, would you still have taken trips to observe, photograph, or feed wildlife in 1985? Remember, the cost per trip for other kinds of recreational activities would not have changed.**

241

1 ☐ Yes
2 ☐ No — *Skip to 12h*

e. **At $** *(4x the amount in a)* **per trip, how many trips would you have taken in 1985?**

242 _____ Trips — *Skip to 12h*

f. **If your trips had cost an average of $** *(2x the amount in a)* **per trip, would you still have taken trips to observe, photograph, or feed wildlife in 1985? Remember, the cost per trip for other kinds of recreational activities would not have changed.**

243

1 ☐ Yes
2 ☐ No — *Skip to 12h*

g. **At $** *(2x the amount in a)* **per trip, how many trips would you have taken in 1985?**

244 _____ Trips

h. **What is the most that your trips for the primary purpose of observing, photographing, or feeding wildlife could have cost per trip before you would not have gone *at all* in 1985, not even one trip, because it would have been too expensive? Remember, the cost per trip for other recreational activities would not have changed.**

245 $ _____ .00 per trip

246 1 ☐ No limit — *Skip to 13*

i. **If trips to observe, photograph, or feed wildlife had been so expensive that you took no trips at all, what would you have done instead?**

247

1 ☐ Fishing or hunting
2 ☐ Other outdoor recreation
3 ☐ Work
4 ☐ Don't know
5 ☐ Other

NOTES

Section I TRIP INFORMATION — Continued

Part C — SECONDARY TRIPS

13. Sometimes people enjoy fish or wildlife while on a trip for another purpose.

a. Were there any occasions during 1985 when you enjoyed seeing or hearing wildlife while on a trip which was taken for another purpose, such as a picnic, driving for pleasure, camping, etc.? DO NOT include trips to other countries, trips of less than one mile, or trips for shopping or to go to work or school.

248
1 ☐ Yes
2 ☐ No — *Skip to Introduction, page 10*

b. On how many of these trips in 1985 did you enjoy seeing or hearing wildlife?

249
1 ☐ 1—10
2 ☐ 11—20
3 ☐ 21—30
4 ☐ 31—50
5 ☐ More than 50

c. How important was the presence of fish or wildlife to your enjoyment of most of these trips or outings? Was it very important, important, or not important at all?

250
1 ☐ Very important
2 ☐ Important
3 ☐ Not important at all

d. Were any of these trips or outings to areas on public land, that is, land owned by the State, local, or Federal government?

251
1 ☐ Yes
2 ☐ No
3 ☐ Don't know
} *Skip to Introduction, page 10*

SHOW FLASHCARD B

e. Which of these types of areas were they?

Pause after reading each category. Mark (X) all that apply.

252
*
1 ☐ **Federal land such as a National forest, wildlife refuge, etc.**
2 ☐ **State wildlife management area or a State wildlife refuge**
3 ☐ **Other state-owned areas such as State parks and forests**
4 ☐ **Areas owned by local government**
5 ☐ **Public land that you are unable to say whether State, local, or Federally-owned**

NOTES

Section I — TRIP INFORMATION — Continued

Part A — PRIMARY TRIPS — Continued

INTERVIEWER — Complete items 4a—9e for the first State entered in item 4, then complete items 4a—9e for the second State entered, etc.

	State 1	State 2	State 3	State 4	State 5
4. STATE →	050	080	110	140	170
a. What is the total number of trips you took in *(State)* in 1985 PRIMARILY to observe, photograph, or feed wildlife?	051 _____ Trips	081 _____ Trips	111 _____ Trips	141 _____ Trips	171 _____ Trips
b. What is the total number of days you spent doing those activities in *(State)* in 1985?	052 _____ Days	082 _____ Days	112 _____ Days	142 _____ Days	172 _____ Days
CHECK ITEM B — *Refer to item 4a above.* Does item 4a = 1 for this State?	053 1 ☐ Yes 2 ☐ No — *Skip to 5b*	083 1 ☐ Yes 2 ☐ No — *Skip to 5b*	113 1 ☐ Yes 2 ☐ No — *Skip to 5b*	143 1 ☐ Yes 2 ☐ No — *Skip to 5b*	173 1 ☐ Yes 2 ☐ No — *Skip to 5b*
5a. Was this trip in *(State)* a one-day trip, that is, a trip on which you went and returned on the same day?	054 1 ☐ Yes 2 ☐ No } *Skip to 5c*	084 1 ☐ Yes 2 ☐ No } *Skip to 5c*	114 1 ☐ Yes 2 ☐ No } *Skip to 5c*	144 1 ☐ Yes 2 ☐ No } *Skip to 5c*	174 1 ☐ Yes 2 ☐ No } *Skip to 5c*
b. Of these trips in *(State)*, how many were one-day trips, that is, trips on which you went and returned the same day?	055 _____ one-day trips 0 ☐ None	085 _____ one-day trips 0 ☐ None	115 _____ one-day trips 0 ☐ None	145 _____ one-day trips 0 ☐ None	175 _____ one-day trips 0 ☐ None
c. On how many different days did you observe wildlife there?	056 _____ Days 0 ☐ None	086 _____ Days 0 ☐ None	116 _____ Days 0 ☐ None	146 _____ Days 0 ☐ None	176 _____ Days 0 ☐ None
d. On how many different days did you photograph wildlife there?	057 _____ Days 0 ☐ None	087 _____ Days 0 ☐ None	117 _____ Days 0 ☐ None	147 _____ Days 0 ☐ None	177 _____ Days 0 ☐ None
e. On how many different days did you feed wildlife there?	058 _____ Days 0 ☐ None	088 _____ Days 0 ☐ None	118 _____ Days 0 ☐ None	148 _____ Days 0 ☐ None	178 _____ Days 0 ☐ None
f. On the average, how many hours did you spend observing, photographing, or feeding wildlife on a typical day there?	059 _____ Hours	089 _____ Hours	119 _____ Hours	149 _____ Hours	179 _____ Hours
g. Did you spend any time on any of these trips or outings in *(State)* scouting for fish or game or for a place to fish or hunt?	060 1 ☐ Yes 2 ☐ No — *Skip to 6*	090 1 ☐ Yes 2 ☐ No — *Skip to 6*	120 1 ☐ Yes 2 ☐ No — *Skip to 6*	150 1 ☐ Yes 2 ☐ No — *Skip to 6*	180 1 ☐ Yes 2 ☐ No — *Skip to 6*
CHECK ITEM C — *Refer to item 5a above.* Is "Yes" marked in 5a?	061 1 ☐ Yes — *Skip to 6* 2 ☐ No	091 1 ☐ Yes — *Skip to 6* 2 ☐ No	121 1 ☐ Yes — *Skip to 6* 2 ☐ No	151 1 ☐ Yes — *Skip to 6* 2 ☐ No	181 1 ☐ Yes — *Skip to 6* 2 ☐ No
5b. How many different days?	062 _____ Days	092 _____ Days	122 _____ Days	152 _____ Days	182 _____ Days
6. Approximately how many miles is it to the place you visited most often in *(State)*?	063 _____ Miles 064 1 ☐ Don't know	093 _____ Miles 094 1 ☐ Don't know	123 _____ Miles 124 1 ☐ Don't know	153 _____ Miles 154 1 ☐ Don't know	183 _____ Miles 184 1 ☐ Don't know
7a. On your trip(s) in *(State)* in 1985, did you visit any areas on privately-owned land?	065 1 ☐ Yes 2 ☐ No 3 ☐ Don't know	095 1 ☐ Yes 2 ☐ No 3 ☐ Don't know	125 1 ☐ Yes 2 ☐ No 3 ☐ Don't know	155 1 ☐ Yes 2 ☐ No 3 ☐ Don't know	185 1 ☐ Yes 2 ☐ No 3 ☐ Don't know
b. Did you visit any areas on public land, that is, land owned by the State, local, or Federal Government?	066 1 ☐ Yes 2 ☐ No 3 ☐ Don't know } *Skip to 8a*	096 1 ☐ Yes 2 ☐ No 3 ☐ Don't know } *Skip to 8a*	126 1 ☐ Yes 2 ☐ No 3 ☐ Don't know } *Skip to 8a*	156 1 ☐ Yes 2 ☐ No 3 ☐ Don't know } *Skip to 8a*	186 1 ☐ Yes 2 ☐ No 3 ☐ Don't know } *Skip to 8a*

	State 1	State 2	State 3	State 4	State 5
SHOW FLASHCARD B **7c. Which of these types of areas did you visit in *(State)*?** *Pause after reading each category. Mark (X) all that apply* **1 — Federal land such as a National forest, wildlife refuge, etc.?** **2 — State wildlife management area or a State wildlife refuge?** **3 — Other State-owned areas such as State parks and forests?** **4 — Areas owned by local government?** **5 — Public land that you are unable to say whether State, local, or Federally-owned?**	067 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐	097 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐	127 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐	157 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐	187 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐
SHOW FLASHCARD N **8a. Which of the following types of sites did you visit to observe, photograph, or feed wildlife in *(State)* in 1985?** *Pause after reading each category. Mark (X) all that apply.* **1 — Ocean side?** **2 — Lake or stream side?** **3 — Marsh/wetland/swamp?** **4 — Woodland?** **5 — Brush-covered area?** **6 — Open field?** **7 — Man-made area (golf course, cemetery, urban park, etc.)?** **8 — Other?**	068 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 069 7 ☐ * 8 ☐	098 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 099 7 ☐ * 8 ☐	128 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 129 7 ☐ * 8 ☐	158 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 159 7 ☐ * 8 ☐	188 * 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 189 7 ☐ * 8 ☐
Ask ONLY IF more than one box marked in 8a above. **b. Which type of site did you visit most often in 1985?** *Enter code from 8a.*	070 ____ Site code	100 ____ Site code	130 ____ Site code	160 ____ Site code	190 ____ Site code
SHOW FLASHCARD O **9. On your trip(s) in *(State)*, did you observe, photograph, or feed —** **a. Birds?** **Did these include *(Mark (X) all that apply)* —** **1 — Birds of prey such as hawks, owls, and eagles?** **2 — Waterfowl and shorebirds such as ducks, geese, herons, pelicans, etc.?** **3 — Game birds such as pheasants, grouse, turkeys, etc.?** **4 — Other birds?**	071 1 ☐ Yes 2 ☐ No — *Skip to b* 072 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	101 1 ☐ Yes 2 ☐ No — *Skip to b* 102 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	131 1 ☐ Yes 2 ☐ No — *Skip to b* 132 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	161 1 ☐ Yes 2 ☐ No — *Skip to b* 162 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	191 1 ☐ Yes 2 ☐ No — *Skip to b* 192 * 1 ☐ 2 ☐ 3 ☐ 4 ☐
b. Fish? **Did these include *(Mark (X) all that apply)* —** **1 — Fish such as salmon, shad, steelhead, etc. that come from the sea to spawn in rivers and streams ?** **2 — Freshwater fish?** **3 — Saltwater fish?**	073 1 ☐ Yes 2 ☐ No — *Skip to c* 074 * 1 ☐ 2 ☐ 3 ☐	103 1 ☐ Yes 2 ☐ No — *Skip to c* 104 * 1 ☐ 2 ☐ 3 ☐	133 1 ☐ Yes 2 ☐ No — *Skip to c* 134 * 1 ☐ 2 ☐ 3 ☐	163 1 ☐ Yes 2 ☐ No — *Skip to c* 164 * 1 ☐ 2 ☐ 3 ☐	193 1 ☐ Yes 2 ☐ No — *Skip to c* 194 * 1 ☐ 2 ☐ 3 ☐
c. Land mammals such as squirrels, coyotes, deer, bears, etc.? **Did these include *(Mark (X) all that apply)* —** **1 — Large mammals such as bears, deer, antelope, wolves, etc.?** **2 — Small mammals such as squirrels, rabbits, coyotes, etc.?**	075 1 ☐ Yes 2 ☐ No — *Skip to d* 076 * 1 ☐ 2 ☐	105 1 ☐ Yes 2 ☐ No — *Skip to d* 106 * 1 ☐ 2 ☐	135 1 ☐ Yes 2 ☐ No — *Skip to d* 136 * 1 ☐ 2 ☐	165 1 ☐ Yes 2 ☐ No — *Skip to d* 166 * 1 ☐ 2 ☐	195 1 ☐ Yes 2 ☐ No — *Skip to d* 196 * 1 ☐ 2 ☐
d. Marine mammals such as seals, whales, dolphins, etc.?	077 1 ☐ Yes 2 ☐ No	107 1 ☐ Yes 2 ☐ No	137 1 ☐ Yes 2 ☐ No	167 1 ☐ Yes 2 ☐ No	197 1 ☐ Yes 2 ☐ No
e. Other wildlife such as frogs, turtles, crabs, butterflies, etc.? **Did these include *(Mark (X) all that apply)* —** **1 — Amphibians and reptiles such as turtles, frogs, lizards, and snakes?** **2 — Insects and spiders such as butterflies, beetles, etc.?** **3 — Shellfish such as crabs, clams, mussels, etc.?** **4 — Other?**	078 1 ☐ Yes 2 ☐ No — *Go to next column* 079 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	108 1 ☐ Yes 2 ☐ No — *Go to next column* 109 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	138 1 ☐ Yes 2 ☐ No — *Go to next column* 139 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	168 1 ☐ Yes 2 ☐ No — *Go to next column* 169 * 1 ☐ 2 ☐ 3 ☐ 4 ☐	198 1 ☐ Yes 2 ☐ No — *Skip to 10* 199 * 1 ☐ 2 ☐ 3 ☐ 4 ☐
INTERVIEWER — Fill items 4a—9e for next State listed in item 4. If last State, go to item 10 on next page.					

LITERATURE CITED

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APPENDIX A

Relevant portions of Form FH-4 of the 1985 National Survey of Fishing, Hunting, and Wildlife-associated Recreation.

Table 11. Estimated Number of Secondary Nonconsumptive Trips to Forest Service and Bureau of Land Management Lands in 1985.

Type of Land	Secondary Nonconsumptive Trips	+ 95% Confidence Interval
Forest Service	93,247,126	3,210,157
BLM	8,556,795	315,753

Forest Service and BLM supplement this analysis with similar analyses of hunting and fishing on lands managed by these agencies.

Table 9. Continued

Region/State	Allowable Maximum of $300 Net Economic Value	Allowable Maximum of $300 ± 95% Confidence Interval	Allowable Maximum of $500 Net Economic Value	Allowable Maximum of $500 ± 95% Confidence Interval
	(in thousands of dollars)			
Southern Region	65,064	5,889	88,529	9,442
Alabama	611	296	1,104	791
Arkansas	917	399	917	399
Florida	20,080	3,321	24,629	4,866
Georgia	1,444	560	1,561	621
Kentucky	1,629	638	2,501	1,206
Louisiana	1,376	655	1,376	655
Mississippi	292	207	292	207
North Carolina	4,518	1,125	5,481	1,630
Oklahoma	324	112	324	112
South Carolina	1,852	774	1,852	774
Tennessee	6,946	1,623	10,174	2,666
Texas	5,693	1,302	9,479	2,273
Virginia	20,276	4,340	27,273	7,284
Alaska Region	12,973	5,853	18,335	11,015
TOTAL	611,439	15,490	818,073	23,756

Table 10. Estimated Net Value of Primary Nonconsumptive Trips to Bureau of Land Management Lands, for Two Possible Maximum Cutoffs, by State.

Region/State	Allowable Maximum of $300 Net Economic Value	Allowable Maximum of $300 ± 95% Confidence Interval	Allowable Maximum of $500 Net Economic Value	Allowable Maximum of $500 ± 95% Confidence Interval
	(in thousands of dollars)			
Alaska	686	309	969	582
Arizona	6,001	1,156	9,308	1,868
California	27,931	3,176	34,946	4,218
Colorado	4,707	697	6,484	1,351
Idaho	10,968	2,827	14,054	3,515
Minnesota	12	3	12	3
Montana	444	137	844	320
Nevada	2,486	967	2,995	1,207
New Mexico	1,993	510	2,230	641
North Dakota	8	7	8	7
Oregon	4,668	1,134	5,440	1,454
South Dakota	13	5	14	6
Utah	2,996	596	3,658	877
Washington	25	7	36	13
Wyoming	1,011	209	1,491	360
TOTAL	63,949	1,964	82,489	3,014

The average net economic value per trip was then expanded by the number of trips to each region or state to project the total net value of primary nonconsumptive trips to Forest Service and BLM lands (Tables 9 and 10, respectively). California, with a high net economic value and the greatest number of trips, had the highest total net value of any state, for both Forest Service and BLM lands.

Table 11 shows the estimated number of secondary nonconsumptive trips taken nationally to Forest Service and BLM lands. These should be considered gross estimates because no information was available from the survey as to the type of land visited or the exact number of trips taken.

IMPLICATIONS

The estimates provided in this report are quite impressive; over 18 million trips to Forest Service lands and over 1.5 million trips to BLM lands in 1985. The estimates for BLM land would be slightly higher if the states with small tracts of BLM lands could be added in. In any case, the net economic value of trips to Forest Service lands exceeds $600 million and for BLM lands $64 million.

These numbers will be useful for planning by the Forest Service and BLM. But they provide only part of the picture for use of land for wildlife-associated recreation. Public land is also used for hunting and fishing. Information is available from the 1985 National Survey on use of public land for hunting and fishing and thus a similar analysis could be done for those activities. Information is also available on the economic value of deer, elk, and waterfowl hunting and bass fishing, which could then be estimated for Forest Service and BLM lands. It is recommended that the

Table 9. Estimated Net Value of Primary Nonconsumptive Trips to Forest Service Lands, for Two Possible Maximum Cutoffs, by Region and State.

Region/State	Allowable Maximum of $300 Net Economic Value [a]	Allowable Maximum of $300 ± 95% Confidence Interval	Allowable Maximum of $500 Net Economic Value	Allowable Maximum of $500 ± 95% Confidence Interval
		(in thousands of dollars)		
Northern, Rocky Mountain, and Intermountain Region	174,308	19,944	235,059	30,538
Colorado	68,257	10,104	94,026	19,596
Idaho	40,765	10,508	52,233	13,066
Kansas	3	2	3	2
Montana	16,883	5,214	32,067	12,158
Nebraska	67	34	104	99
Nevada	7,627	2,966	9,187	3,704
North Dakota	260	218	260	218
South Dakota	3,165	1,135	3,434	1,439
Utah	34,483	6,855	42,106	10,096
Wyoming	19,721	4,070	29,079	7,027
Southwestern Region	83,770	13,437	120,763	20,890
Arizona	57,216	11,019	88,741	17,810
New Mexico	25,913	6,633	28,988	8,337
Pacific Southwest Region	181,396	20,625	226,957	27,393
California	181,396	20,625	226,957	27,393
Pacific Northwest Region	43,950	8,480	55,935	12,298
Oregon	29,418	7,146	34,285	9,161
Washington	15,362	4,422	22,010	7,811
Eastern Region	49,978	4,636	72,495	8,256
Illinois	15,888	4,530	17,421	5,095
Indiana	2,317	693	2,317	693
Maine	83	41	182	81
Michigan	6,017	1,474	13,747	5,011
Minnesota	10,081	2,544	10,235	2,688
Missouri	1,989	666	2,930	1,563
New Hampshire	6,651	1,646	7,856	2,610
New York	54	14	76	28
Ohio	175	48	204	72
Pennsylvania	2,508	695	2,508	695
Vermont	2,317	1,095	2,600	1,379
West Virginia	3,161	2,091	8,739	5,033
Wisconsin	6,253	1,565	12,329	3,651

[a] Total net value was calculated by expanding the cost per trip (and its associated 95% confidence interval) by the estimated number of trips to that region or state.

Table 7. Net Economic Value Per Primary Nonconsumptive Trip, for Two Possible Maximum Cutoffs, by State Visited.

State	Allowable Maximum of $300		Allowable Maximum of $500	
	Net Economic Value [a]	± 95% Confidence Interval	Net Economic Value	± 95% Confidence Interval
	Per Trip			
Alabama	21.15	10.26	38.23	27.41
Alaska	29.81	13.45	42.13	25.31
Arizona	38.84	7.48	60.24	12.09
Arkansas	16.95	7.38	16.95	7.38
California	45.03	5.12	56.34	6.80
Colorado	32.29	4.78	44.48	9.27
Florida	26.00	4.30	31.89	6.30
Georgia	24.92	9.67	26.93	10.72
Idaho	53.07	13.68	68.00	17.01
Illinois	37.42	10.67	41.03	12.00
Indiana	40.15	12.00	40.15	12.00
Kansas	13.82	8.98	13.82	8.98
Kentucky	30.22	11.84	46.41	22.37
Louisiana	18.93	9.01	18.93	9.01
Maine	23.07	11.24	50.44	22.39
Michigan	14.41	3.53	32.92	12.00
Minnesota	30.23	7.63	30.69	8.06
Mississippi	20.63	14.60	20.63	14.60
Missouri	14.31	4.79	21.08	11.25
Montana	22.44	6.93	42.62	16.16
Nebraska	13.04	6.62	20.14	19.28
Nevada	42.38	16.48	51.05	20.58
New Hampshire	36.29	8.98	42.86	14.24
New Mexico	41.37	10.59	46.28	13.31
New York	15.73	4.19	22.01	8.20
North Carolina	32.76	8.16	39.74	11.82
North Dakota	24.05	20.10	24.05	20.10
Ohio	22.50	6.23	26.26	9.24
Oklahoma	21.46	7.45	21.46	7.45
Oregon	33.43	8.12	38.96	10.41
Pennsylvania	16.59	4.60	16.59	4.60
South Carolina	29.71	12.41	29.71	12.41
South Dakota	22.48	8.06	24.39	10.22
Tennessee	37.10	8.67	54.34	14.24
Texas	34.66	7.93	57.71	13.84
Utah	36.82	7.32	44.96	10.78
Vermont	22.79	10.77	25.57	13.56
Virginia	28.31	6.06	38.08	10.17
Washington	22.44	6.46	32.15	11.41
West Virginia	24.08	15.93	66.57	38.34
Wisconsin	24.73	6.19	48.76	14.44
Wyoming	39.68	8.19	58.51	14.14

[a]This is the amount above average current costs.

Table 8. Net Economic Value Per Primary Nonconsumptive Trip, for Two Possible Maximum Cutoffs, by Forest Service Region Visited.

Forest Service Regions	Allowable Maximum of $300 Net Economic Value	Allowable Maximum of $300 ± 95% Confidence Interval	Allowable Maximum of $500 Net Economic Value	Allowable Maximum of $500 ± 95% Confidence Interval
	Per Trip		Per Trip	
Northern, Rocky Mountain, and Intermountain	32.25	3.69	43.49	5.65
Southwestern	39.90	6.40	57.52	9.95
Pacific Southwest	45.03	5.12	56.34	6.80
Pacific Northwest	28.09	5.42	35.75	7.86
Eastern	22.64	2.10	32.84	3.74
Southern	27.84	2.52	37.88	4.04
Alaska	29.81	13.45	42.13	25.31

Table 5. Estimated Number of Days Spent on Primary Nonconsumptive Trips to Bureau of Land Management Lands in 1985, by State.

State	# Days	+ 95% Confidence Interval
Alaska	73,372	50,716
Arizona	368,327	89,978
California	896,051	94,405
Colorado	191,814	37,141
Idaho	291,012	101,731
Minnesota	502	161
Montana	29,357	6,219
Nevada	101,882	54,033
New Mexico	68,974	29,124
North Dakota	376	157
Oregon	183,150	64,061
South Dakota	782	208
Utah	108,018	21,669
Washington	1,247	390
Wyoming	47,656	12,849
TOTAL	2,362,521	154,083

Table 6. Estimated Number of Visitor Hours Spent on Primary Nonconsumptive Trips to Bureau of Land Management Lands in 1985, by State.

State	Visitor Hours	+ 95% Confidence Interval
Alaska	308,451	253,773
Arizona	1,802,558	431,519
California	2,892,978	326,793
Colorado	717,134	159,643
Idaho	872,132	373,173
Minnesota	1,646	543
Montana	131,815	42,471
Nevada	394,236	154,083
New Mexico	345,157	203,891
North Dakota	1,334	704
Oregon	885,437	413,796
South Dakota	3,143	928
Utah	441,989	97,718
Washington	4,784	2,516
Wyoming	211,856	79,809
TOTAL	9,014,652	648,680

Table 3. Continued.

Region/State	Visitor Hours	± 95% Confidence Interval
Southern Region	12,470,337	1,806,420
Alabama	119,513	81,979
Arkansas	190,279	100,445
Florida	3,308,077	540,301
Georgia	289,127	119,390
Kentucky	393,359	156,565
Louisiana	334,929	166,574
Mississippi	51,142	44,324
North Carolina	862,190	354,824
Oklahoma	52,132	18,381
South Carolina	274,912	164,354
Tennessee	1,310,481	562,584
Texas	775,658	120,793
Virginia	4,508,536	1,452,031
Alaska Region	5,835,888	4,801,358
TOTAL	105,820,242	9,433,898

Table 4. Estimated Number of Primary Nonconsumptive Trips to Bureau of Land Management Lands in 1985, by State.[a]

State	# Trips	+ 95% Confidence Interval
Alaska[b]	23,002	13,412
Arizona	154,509	45,332
California	620,269	87,886
Colorado	145,785	35,680
Idaho	206,678	81,676
Minnesota	406	162
Montana	19,799	5,974
Nevada	58,666	34,305
New Mexico	48,182	27,017
North Dakota	338	150
Oregon	139,644	51,177
South Dakota	576	203
Utah	81,370	18,433
Washington	1,111	382
Wyoming	25,487	9,915
TOTAL	1,525,823	111,005

[a]States with <9,000 acres of BLM land (Alabama, Arkansas, Florida, Illinois, Kansas, Louisiana, Michigan, Mississippi, Missouri, Nebraska, Ohio, and Oklahoma) had no visitation statistics and the size of the holding was very small in comparison to the size of the state, so the number of trips could not be calculated and no further analysis could be done with these states.

[b]Acreage managed by the BLM was constantly changing in 1985; 162 million acres was the number used to calculate ratios necessary to estimate the number of trips.

Table 2. Continued

Region/State	# Days	+ 95% Confidence Interval
Southern Region	3,267,286	460,758
Alabama	37,586	38,820
Arkansas	59,335	26,926
Florida	1,011,543	207,005
Georgia	67,177	25,191
Kentucky	89,576	30,220
Louisiana	91,462	51,791
Mississippi	15,024	13,278
North Carolina	237,055	92,032
Oklahoma	15,513	5,364
South Carolina	86,934	63,940
Tennessee	313,453	116,443
Texas	192,301	30,276
Virginia	1,050,327	346,878
Alaska Region	1,388,191	972,143
TOTAL	27,378,677	2,009,061

Table 3. Estimated Number of Visitor Hours Spent on Primary Nonconsumptive Trips to Forest Service Lands in 1985, by Forest Service Region and State.

Region/State	Visitor Hours	+ 95% Confidence Interval
Northern, Rocky Mountain, and Intermountain Region	29,899,402	3,820,804
Colorado	10,398,444	2,314,782
Idaho	3,241,348	1,386,207
Kansas	656	476
Montana	5,008,987	1,613,862
Nebraska	11,235	5,531
Nevada	1,209,347	472,655
North Dakota	42,700	22,304
South Dakota	768,448	224,714
Utah	5,087,048	1,124,652
Wyoming	4,131,189	1,556,308
Southwestern Region	21,673,073	4,909,522
Arizona	17,186,036	4,114,225
New Mexico	4,487,037	2,650,582
Pacific Southwest Region	18,788,461	2,122,408
California	18,788,461	2,122,408
Pacific Northwest Region	8,526,920	3,057,473
Oregon	5,579,780	2,607,615
Washington	2,947,139	1,575,937
Eastern Region	8,626,160	1,193,628
Illinois	894,223	248,676
Indiana	223,027	141,495
Maine	17,935	8,932
Michigan	1,253,485	356,739
Minnesota	1,352,990	383,906
Missouri	460,154	150,231
New Hampshire	1,074,512	482,727
New York	11,706	5,051
Ohio	38,557	19,257
Pennsylvania	685,908	237,082
Vermont	711,535	508,604
West Virginia	576,408	310,218
Wisconsin	1,325,720	421,436

Table 1. Continued

Region/State	# Trips	+ 95% Confidence Interval
Southern Region	2,337,084	335,279
Alabama	28,873	28,189
Arkansas	54,130	26,720
Florida	772,325	191,908
Georgia	57,955	25,274
Kentucky	53,897	24,940
Louisiana	72,685	47,956
Mississippi	14,174	13,335
North Carolina	137,913	78,833
Oklahoma	15,103	5,374
South Carolina	62,341	50,845
Tennessee	187,236	70,340
Texas	164,251	29,618
Virginia	716,199	220,823
Alaska Region	435,201	253,710
TOTAL	18,077,147	1,319,262

Table 2. Estimated Number of Days Spent on Primary Nonconsumptive Trips to Forest Service Lands in 1985, by Forest Service Region and State.

Region/State	# Days	+ 95% Confidence Interval
Northern, Rocky Mountain, and Intermountain Region	7,672,760	841,685
Colorado	2,781,301	538,569
Idaho	1,081,569	382,262
Kansas	258	136
Montana	1,115,577	236,242
Nebraska	5,762	4,097
Nevada	312,531	166,361
North Dakota	12,029	5,038
South Dakota	191,215	51,343
Utah	1,243,224	249,378
Wyoming	929,294	249,582
Southwestern Region	4,408,390	1,004,973
Arizona	3,511,725	928,463
New Mexico	896,665	378,579
Pacific Southwest Region	5,819,408	613,070
California	5,819,408	613,070
Pacific Northwest Region	1,922,629	234,639
Oregon	1,154,160	403,695
Washington	768,469	238,329
Eastern Region	2,900,013	373,500
Illinois	448,635	125,211
Indiana	62,223	38,937
Maine	4,949	2,545
Michigan	522,345	146,942
Minnesota	412,800	134,844
Missouri	166,798	60,160
New Hampshire	306,977	120,895
New York	3,594	1,144
Ohio	11,329	5,169
Pennsylvania	177,933	55,428
Vermont	193,591	141,949
West Virginia	157,058	112,734
Wisconsin	431,781	110,918

by the estimated number of trips to BLM or Forest Service lands in a state or region.

RESULTS AND DISCUSSION

Tables 1 through 3 detail the estimated number of primary nonconsumptive trips/days/visitor hours to Forest Service lands in 1985. Results are presented for each state, so states with small sample sizes in the 1985 National Survey have wide confidence intervals. Results are also presented by Forest Service region, which bolsters the sample size and reduces the confidence intervals. This regional analysis is particularly helpful in the Eastern and Southern regions, where many states have small sample sizes.

Tables 4 through 6 detail the estimated number of primary nonconsumptive trips/days/visitor hours to BLM lands for those states where it was possible to make an estimate. Results are reported primarily for western states with large tracts of BLM land. California BLM lands had the greatest amount of visitation for primary nonconsumptive trips followed by Arizona, Colorado, Idaho, and Oregon.

The average net economic value per trip was calculated for each state with either Forest Service or BLM land (Table 7). Two maximum cut off values were used, $300 and $500. The allowable maximums represent the greatest amount above current costs a person would be willing to pay for a primary nonconsumptive trip. Having a higher allowable maximum allows for the higher net economic value estimates in column 3 of Table 7. Again, confidence intervals are wide for states with small sample sizes; Table 8 presents results for Forest Service regions with larger sample sizes.

Table 1. Estimated Number of Primary Nonconsumptive Trips to Forest Service Lands in 1985, by Forest Service Region and State.

Region/State	# Trips	+ 95% Confidence Interval
Northern, Rocky Mountain and Intermountain Region	5,404,903	738,695
Colorado	2,113,888	517,510
Idaho	768,134	303,558
Kansas	237	136
Montana	752,384	226,437
Nebraska	5,145	4,142
Nevada	179,961	105,237
North Dakota	10,826	4,851
South Dakota	140,815	49,782
Utah	936,521	212,180
Wyoming	496,992	193,360
Southwestern Region	2,099,499	554,306
Arizona	1,473,128	432,207
New Mexico	626,371	351,215
Pacific Southwest Region	4,028,339	570,849
California	4,028,339	570,849
Pacific Northwest Region	1,564,606	400,695
Oregon	880,001	322,508
Washington	684,605	237,740
Eastern Region	2,207,515	324,273
Illinois	424,582	125,545
Indiana	57,722	38,851
Maine	3,618	2,479
Michigan	417,588	141,149
Minnesota	333,490	131,523
Missouri	138,980	57,606
New Hampshire	183,288	77,845
New York	3,453	1,144
Ohio	7,777	3,306
Pennsylvania	151,205	52,329
Vermont	101,685	107,885
West Virginia	131,279	114,449
Wisconsin	252,847	75,227

nonconsumptive use were made: Alabama, Arkansas, Florida, Illinois, Kansas, Louisiana, Michigan, Mississippi, Missouri, Nebraska, Ohio, and Oklahoma.

The estimates presented in the results section were done in terms of the number of trips, days, and hours of use. There were 42 respondents to the National Survey (<1% of primary nonconsumptive users) who reported visiting more than 5 states on primary nonconsumptive trips. For these additional (over 5) states visited, only information on the number of trips and days spent in the state was requested. Estimates of potential use of BLM and Forest Service lands by these 42 respondents for visits to these additional states was not calculated. Thus, the reported estimates may be slightly conservative.

Estimating the Number of Secondary Nonconsumptive Trips to Forest Service and BLM Lands

An analysis approach similar to that for primary trips was used to estimate the number of secondary trips taken to Forest Service and BLM lands, respectively, on a national basis, using questions 13a-e. Secondary trips were not reported on a state by state basis. Also, the number of trips was reported by category (1-10 trips, 11-20 trips, etc.), so mid-points for each category were used to estimate the number of trips. For the top category (more than 50 trips), 75 trips was used as the point estimate.

Estimating the Value of Primary Nonconsumptive Trips to Forest Service and BLM Lands

Analysis of the "contingent value" questions (12a, h) was conducted using the procedures outlined in "Net Economic Recreation Values for Deer and Waterfowl Hunting and Trout Fishing, 1980" by Brown and Hay (1987). The first part of this procedure involved eliminating those people whose number of trips or costs were considered out of range. People who took more than 365 trips/year were eliminated from the analysis. The approximately 6% who were willing to pay an unlimited amount of money were eliminated as well as the 10% who were not willing to pay more than what they actually did pay. Also, 2 different allowable maximum values were determined and those above the maximum were excluded from that portion of the analysis. The allowable maximum per trip when set at $500 eliminated another 2% of the sample, and at $300 another 5%. The net economic value was calculated by subtracting a person's current cost per trip from the greatest cost they were willing to pay, and dividing that by 2.

The final step in the analysis produced estimates of the value of primary nonconsumptive trips to BLM and Forest Service lands by multiplying the net economic value per trip by the estimated use of BLM and Forest Service lands by state. This process was complicated by the fact that net economic value was not available on a per state-visited basis, but rather was a respondent's average of all trips to all states visited. It was necessary to use an overall average net economic value for people visiting each state to estimate values on Forest Service and BLM lands by state.

The value of primary nonconsumptive trips was calculated by expanding the net economic value per trip (and its associated 95% confidence interval)

Useable Federal Lands[4] in each state. This ratio could have been developed using either land area (acres) or visitation (visitor hours) statistics. Information was available by state for federal lands using either method (U.S. Bureau of the Census 1986, U.S. Bureau of Land Management 1985, National Park Service 1985). After calculating example ratios for New York and California it became apparent that the 2 methods would not yield similar ratios. So which method most closely approximates nonconsumptive use? The visitation option had intuitive appeal because it compared people's use of federal lands in general to people's use of federal lands for nonconsumptive purposes. The assumption being made when using visitation ratios is that the ratio of primary nonconsumptive trips to total trips being taken to each type of federal land is constant.

The only data unavailable for calculating the federal land ratio was visitation numbers for Fish and Wildlife Service non-fee management units (part of Other Useable Federal Lands). To get an estimate for visitation numbers, visitors/acre was calculated for various types of federal land. It appeared that visitation/acre to BLM land was most similar to visitation/acre to Fish and Wildlife Service land. Thus, visitation numbers for Fish and Wildlife Service non-fee management units were estimated using the BLM visitors/acre proportion.

Federal Land to Other Public Land Ratio

For persons who had also visited other (nonfederal) public lands or did not know what type of public lands they visited, a ratio of useable federal

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[4]Other useable federal lands were defined as lands that were possible to visit for primary nonconsumptive purposes and included land operated by the Bureau of Reclamation, Corps of Engineers, Fish and Wildlife Service, National Parks Service, and Tennessee Valley Authority.

lands to other nonfederal public lands was applied prior to applying the previous federal lands ratio. For this second ratio, information on state land visitation and useable federal land visitation was available (U.S. Bureau of the Census 1986). However, there was no comprehensive information on local public land visitation or area. Fourteen percent of the sample visited local public land in the same state where they had visited federal land. The size of this group seemed too large to eliminate from the analysis. Instead, we made the assumption that local public land area is about half that of state land area and visitation/acre to local public land is about 3 times that of state land.

Private to Public Land Ratio

For persons who said they had visited private lands in addition to federal lands, a third ratio of private to useable public acreage was applied. Because private land visitation statistics were not available, land area was used. Useable public land area data were available and complete. Private land area was calculated by subtracting all identifiable public land, crop land, rural farmsteads, rural roads, and an approximation of urban area (based on 1982 land-use statistics) from total land area (Frey and Hexem 1985).

For persons who didn't know if they had visited public land (Q7b), all three of the above mentioned ratios were applied to apportion trips/days/hours of use to BLM and Forest Service lands.

The ratios were calculated on a state-by-state basis and applied to the 1985 National Survey data. The following states had less than 9,000 acres of BLM land and no visitation information was available, so no estimates of

INTRODUCTION

As nonconsumptive uses of wildlife have increased over the past decade, we have seen an increased interest on the part of public agencies in identifying these uses and estimating the values the public places on them. Most recently the U.S. Forest Service and the Bureau of Land Management (BLM) desired information on the amount of nonconsumptive use of lands they managed. This information would be valuable to them for planning purposes.

The 1985 National Survey of Fishing, Hunting, and Wildlife-associated Recreation provides the most current and comprehensive assessment of nonconsumptive use.[1] However, it does not provide precise estimates of the nonconsumptive use of Forest Service and BLM lands, because the survey did not elicit exact identification of the ownership of federal lands visited by the public.

The Human Dimensions Research Unit, Department of Natural Resources at Cornell University, performed an analysis of the 1985 National Survey to obtain estimates of nonconsumptive use on Forest Service and BLM lands. The principal objective of the analysis was to prorate the number of primary nonconsumptive trips[2], days, and hours of use to Forest Service and BLM lands in each state containing such land. Additional analysis focused on estimating the number of secondary nonconsumptive trips[3] taken to Forest

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[1]The authors would like to acknowledge Warren Fisher and the U.S. Fish and Wildlife Service for providing us with tape copies of the data from the 1985 Survey.

[2]Primary nonconsumptive trips were defined on the 1985 National Survey as taking a trip of at least one mile from home for the primary purpose of observing, photographing, or feeding wildlife.

[3]Secondary nonconsumptive trips were defined on the 1985 National Survey as trips where wildlife was enjoyed but the primary purpose of the trip was not observing wildlife.

Service and BLM lands on a national basis. Also, analysis of the "contingent value" questions was conducted to estimate the value of primary nonconsumptive trips to Forest Service and BLM lands.

METHODS

Estimating the Number of Primary Nonconsumptive Trips to Forest Service and BLM Lands

Using the 1985 National Survey data, we selected from all respondents who had taken primary nonconsumptive trips only those people who had (1) visited federal lands, (2) visited public lands that they were unable to classify as to state, federal or local land, or (3) visited land that they were unsure as to whether it was publicly or privately owned. These categories encompass all possible federal land visitors. Then, the use of Forest Service and BLM lands was estimated on a state by state basis. Because question 7c (Form FH-4 of the 1985 National Survey) does not produce exact identification of the ownership of federal lands visited, nor indicate the respective days of use, it was necessary to infer the amount of use from the information in questions 7a-c (for exact wording of questions see Appendix A) and available public land and recreation visitation statistics. Three ratios were used to apportion trips/days/hours of use, based on respondents' answers to Questions 7a-c.

Federal Land Ratio

For persons who had visited only federal lands, the number of trips/days/hours spent on BLM or Forest Service lands was apportioned from total trips/days/hours using a ratio of BLM to Forest Service to Other

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by

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April 1988

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[1]This is the final report for the project funded by USFS Purchase Order No. 40-3187-7-1516.